

## CLAIMS

The embodiments of the invention in which an exclusive property or right is claimed are defined as follows. Having thus described the invention

5 what is claimed is:

1. A pre-load weld fixture apparatus, comprising:

a stationary pivot block attached to a base, wherein said stationary  
10 pivot block is located adjacent to a nest for maintaining an object to be  
welded, wherein said nest is located above and upon said base;

a pivot arm associated with a pivot arm insert, wherein said pivot arm  
rotates about a pivot point provided by a pin press component associated  
15 with said stationary pivot block, such that said pivot point is fixed to said  
stationary pivot block in relation to said object to be welded and wherein said  
pivot arm is positioned parallel to said nest; and

a spring block connected to said stationary pivot block, wherein said  
20 spring block provides tension to said pivot arm in order to permit a user to  
maintain said object upon said base with a desired tension for welding  
thereof.

2. The apparatus of claim 1 further comprising a torsion spring  
25 maintained by said spring block, wherein said torsion spring allows said  
spring block to provide said tension to said pivot arm.

3. The apparatus of claim 2 wherein said spring block comprises an  
adjustable position torsion spring block that includes a plurality of setscrews.

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4. The apparatus of claim 1 wherein said spring block comprises a  
plurality of adjust slots formed on at least one side of said spring block,

which permit a user to move said spring block to provide more tension or less tension for application to said object to be welded.

5. The apparatus of claim 1 wherein said object to be welded comprises  
5 a sensor device.

6. The apparatus of claim 5 wherein said sensor device comprises a SAW sensor device having at least one quartz component therein.

10 7. The apparatus of claim 6 wherein said SAW sensor device is maintained by a top housing and a bottom housing, wherein said top housing and said bottom housing are welded to one another while said SAW sensor device is maintained within said nest upon said base.

15 8. The apparatus of claim 1 wherein said nest, said pivot arm, and said pivot arm insert are formed from a copper material in order to dissipate heat and prevent accidental welding of said object to said nest or said pivot arm.

9. The apparatus of claim 1 wherein said pivot arm insert comprises a  
20 copper insert that permits clearance between said pivot arm and a plurality of metal pins associated with said object to be welded, thereby permitting said user to rotate said object in said nest for multiple spot welding positions.

10. A pre-load weld fixture apparatus, comprising:  
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a stationary pivot block attached to a base, wherein said stationary pivot block is located adjacent to a nest for maintaining a sensor enclosure to be welded together, wherein said nest is located above and upon said base;

30 a pivot arm associated with a pivot arm insert, wherein said pivot arm rotates about a pivot point provided by a pin press component associated with said stationary pivot block, such that said pivot point is fixed to said

stationary pivot block in relation to said sensor enclosure and wherein said pivot arm is positioned parallel to said nest; and

an adjustable position torsion spring block connected to said  
5 stationary pivot block, wherein said adjustable position torsion spring block provides tension to said pivot arm via a torsion spring maintained by said adjustable position torsion spring block in order to permit a user to maintain said sensor enclosure upon said base with a desired tension for welding thereof.

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11. The apparatus of claim 10 wherein said sensor enclosure comprises a top housing and a bottom housing for maintaining a SAW sensor device therein, including at least one quartz component, wherein said top housing and said bottom housing are welded to one another while said SAW sensor  
15 device is maintained by said nest upon said base.

12. The apparatus of claim 10 wherein said nest, said pivot arm, and said pivot arm insert are formed from a copper material in order to dissipate heat and prevent accidental welding of said sensor enclosure to said nest or said  
20 pivot arm.

13. The apparatus of claim 10 wherein said pivot arm insert comprises a copper insert that permits clearance between said pivot arm and a plurality of metal pins associated with said sensor enclosure, thereby permitting said  
25 user to rotate said sensor enclosure in said nest for multiple spot welding positions.

14. A weld fixture method, comprising the steps of:

30 attaching a stationary pivot block to a base, wherein said stationary pivot block is located adjacent to a nest for maintaining an object to be welded, wherein said nest is located above and upon said base;

associating a pivot arm with a pivot arm insert, wherein said pivot arm rotates about a pivot point provided by a pin press component associated with said stationary pivot block, such that said pivot point is fixed to said 5 stationary pivot block in relation to said object to be welded and wherein said pivot arm is positioned parallel to said nest; and

connecting a spring block to said stationary pivot block, wherein said 10 spring block provides tension to said pivot arm in order to permit a user to maintain said object upon said base with a desired tension for welding thereof.

15. The method of claim 14 further comprising the step of:

15 associating a torsion spring with said spring block, wherein said spring block maintains said torsion spring in order to provide said tension to said pivot arm.

16. The method of claim 15 further comprising the step of configuring said 20 spring block as an adjustable position torsion spring block that includes at least one setscrew.

17. The method of claim 14 further comprising the step of configuring said 25 spring block to comprise a plurality of adjust slots formed on at least one side of said spring block, which permit a user to move said spring block to provide more tension or less tension for application to said object to be welded.

18. The method of claim 14 wherein said object to be welded comprises a sensor device.

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19. The method of claim 18 wherein said sensor device comprises a SAW sensor device having at least one quartz component therein.

20. The method of claim 19 wherein said SAW sensor device is maintained by a top housing and a bottom housing, wherein said top housing and said bottom housing are welded to one another while said SAW sensor
- 5 device is maintained within said nest upon said base.